

What is Claimed:

~~Sub A1~~ 1. A method of selecting an error correction algorithm in a communications system, the method comprising:

5 dividing each time frame of a multi-frame into a plurality of time slots;
determining an error rate level of a communication channel based on a plurality of bearer data packets when received during said multi-frame; and

10 selecting an error correction algorithm from a plurality of error correction algorithms taking into account said error rate level.

~~Sub B1~~ 2. The method of claim 1, wherein said plurality of bearer data packets comprises traffic data.

15 3. The method of claim 2, wherein said error correction algorithm has an overhead level, and wherein the amount of said traffic data is inversely varied with said overhead.

20 4. The method of claim 1, and wherein said error rate level determination comprises correcting said plurality of bearer

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data packets and detecting a number of defective bearer data packets to obtain a current block error rate (BLER) level, and wherein said error correction algorithm determination is based on said current BLER level.

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5. The method of claim 4, wherein said error correction algorithm selection comprises setting a minimum BLER threshold level and a maximum BLER threshold level to create an acceptable BLER range, selecting a current error correction algorithm if said acceptable BLER range includes said current BLER level and selecting an error correction algorithm different from said current error correction algorithm if said acceptable BLER range does not include said current BLER level.

115 6. The method of claim 5, wherein said plurality of
error correction algorithms comprise differing overhead levels,
and said error correction algorithm determination further
comprises selecting an error correction algorithm with a next
lower overhead than that of said current error correction
20 algorithm if said current BLER level is below said minimum BLER
threshold level and selecting an error correction algorithm with
a next higher overhead than that of said current error correction

algorithm if said current BLER level is above said maximum BLER threshold level.

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5 7. The method of claim 1, wherein said error rate level determination comprises detecting a number of bit errors in said plurality of bearer data packets to obtain a bit error rate (BER) level, and wherein said error rate level determination is based on said current BER level.

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10 8. The method of claim 7, wherein said error correction algorithm selection comprises setting at least one BLER threshold level to create a plurality of BER ranges corresponding to the plurality of error correction algorithms, and selecting an error correction algorithm that corresponds to the BER range that includes the current BER level.

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15 9. The method of claim 1, wherein each bearer data packet of said plurality of bearer data packets is respectively received during a time slot of said each time frame of said multi-frame, and wherein said error correction algorithm selection comprises selecting said error correction algorithm during the last time frame of said multi-frame.

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10. The method of claim 1, further comprising:
determining the dynamic quality of said communication
channel; and

5 adjusting the number of time frames in said plurality of
time frames based on said dynamic quality.

11. The method of claim 1, wherein said plurality of
error correction algorithms includes no error correction
algorithm.

12. The method of claim 1, wherein said plurality of
error correction algorithms includes no error correction
algorithm, a low-level error correction algorithm and a high-
level error correction algorithm.

13. The method of claim 1, wherein said plurality of
bearer data packets are wirelessly transmitted between a central
station and a remote station.

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14. A method of correcting transmission errors in a communications system comprising an FEC dynamic central station and an FEC dynamic remote station, the method comprising:

 determining an error rate level of a communication

5 channel between said FEC dynamic central station and said FEC dynamic remote station based on a plurality of received bearer data packets received during a previous plurality of time frames;

 selecting an error correction algorithm from a plurality of error correction algorithms taking into account said determined error rate level;

 transmitting a bearer data packet during a current time frame;

 receiving said bearer data packet during said current time frame; and

 correcting said bearer data packet.

15. The method of claim 14,
 wherein said bearer data packet transmission comprises generating error correction data according to said selected error correction algorithm, and transmitting said error correction data with said bearer data packet; and

wherein said bearer data packet correction comprises
correcting said bearer data packet according to said selected
error correction algorithm.

5 16. The method of claim 15, wherein said bearer data
packet transmission further comprises encoding a bearer data
packet with said error correction data.

10 17. The method of claim 15, wherein said bearer data
packet transmission further comprises appending a bearer data
packet with said error correction data.

15 18. The method of claim 15, wherein said error rate
level determination comprises correcting said plurality of bearer
data packets and detecting a number of defective bearer data
packets to obtain a current block error rate (BLER) level, and
wherein said error correction algorithm determination is based on
said current BLER level.

20 19. The method of claim 15, wherein said error rate
level determination comprises detecting a number of bit errors in
said plurality of bearer data packets to obtain a current bit

error rate (BER) level, and wherein said error rate level determination is based on said current BER level.

20. The method of claim 14, wherein said plurality of 5 bearer data packets and said bearer data packet are both respectively transmitted by said FEC dynamic central station and received by said FEC dynamic remote station, and said FEC dynamic remote station performs said error rate level determination and said error correction algorithm selection.

21. The method of claim 14, wherein one of said FEC dynamic remote station and FEC dynamic central station transmits a signal to another of said FEC dynamic remote station and said FEC dynamic central station indicating said error correction algorithm selection.

22. The method of claim 21, wherein said another of said FEC dynamic remote station and said FEC dynamic central station transmits a signal to said one of said FEC dynamic remote station and said FEC dynamic central station approving or denying said error correction algorithm selection.

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23. The method of claim 21, wherein said another of said
FEC dynamic remote station and said FEC dynamic central station
transmits a signal to said one of said FEC dynamic remote station
and said FEC dynamic central station encoded in said bearer data
5 packet.

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24. The method of claim 21, wherein said one of said FEC
dynamic remote station and said FEC dynamic central station
corrects said bearer data packet using said plurality of error
10 correction algorithms.

25. A method of correcting transmission errors in a
communications system comprising an FEC dynamic central station
and an FEC dynamic remote station, the method comprising:
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transmitting a first plurality of bearer data packets
during a first multi-frame;

receiving said first plurality of bearer data packets
during said first multi-frame;

20 determining an error rate level of a communication
channel between said FEC dynamic central station and said FEC
dynamic remote station based on said first plurality of bearer
data packets;

selecting an error correction algorithm from a plurality of error correction algorithms taking into account said determined error rate level;

transmitting a second plurality of bearer data packets
5 during a second multi-frame, said second plurality of bearer data packets being generated according to said selected error correction algorithm;

receiving said second plurality of bearer data packets during said second multi-frame; and

correcting said second plurality of bearer data packets according to said selected error correction algorithm.

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26. The method of claim 25,
wherein said first bearer data packet transmission
comprises generating error correction data according to an error
correction algorithm of said plurality of error correction
algorithms, generating error detection data according to an error
detection algorithm, and transmitting said error correction data
and said error detection data with said first plurality of bearer
20 data packets; and

wherein said error rate determination further comprises
correcting said first plurality of bearer data packets according

to said error correction algorithm to create a first plurality of corrected bearer data packets, and detecting a number of defective bearer data packets by detecting any residual errors in said first plurality of corrected bearer data packets according
5 to said error detection algorithm to create a current BLER level.

27. The method of claim 25, wherein said error rate determination further comprises detecting bit errors in said first plurality of bearer data packets to create a current bit error rate (BER) level.

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28. The method of claim 25,
wherein said one of said FEC dynamic central station and said FEC dynamic remote station perform said transmission; and
wherein another of said FEC dynamic central station and said FEC dynamic remote station perform said reception, said error rate level determination, said error correction algorithm selection, and said correction of said second plurality of data packets.

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29. The method of claim 25,

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~~etc~~ wherein said one of said FEC dynamic central station and said FEC dynamic remote station is said FEC dynamic central station and said another of said FEC dynamic central station and said FEC dynamic remote station is said FEC dynamic remote station; and

wherein the method further comprises transmitting first control data from said FEC dynamic remote station to said FEC dynamic central station indicating said error correction algorithm selection, and transmitting second control data from said FEC dynamic central station to said FEC dynamic remote station confirming said error correction algorithm selection.

30. A recordable medium comprising:

a computer program comprising steps for:

determining an error rate level of a communication channel between a plurality of communications terminals based on a plurality of bearer data packets when received; and selecting an error correction algorithm from a plurality of error correction algorithms taking into account said determined error rate level.

31. The recordable medium of claim 30, wherein said computer program further comprises a step for directing one of said communications terminals and said another of said communications terminals to correct a received bearer data packet 5 using said selected error correction algorithm.

32. The recordable medium of claim 30, wherein said error rate level determination step comprises determining said error rate level over a multi-frame, and wherein said error correction algorithm is selected during a frame subsequent to said multi-frame.

33. The recordable medium of claim 30, wherein said error rate level determination step comprises correcting said plurality of bearer data packets and detecting a number of defective bearer data packets to obtain a current block error rate (BLER) level, and wherein said error correction algorithm determination step is based on said current BLER level.

20 34. The recordable medium of claim 30, wherein said error rate level determination comprises detecting a number of bit errors in said plurality of bearer data packets to obtain a
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current bit error rate (BER) level, and wherein said error rate level determination is based on said current BER level.

35. The recordable medium of ~~claim 30~~, wherein said 5 computer program is embedded in a ROM chip.

~~36.~~ 36. A communications terminal, comprising:
a receiver;
an error correction decoder electrically coupled to said receiver; and

a processor coupled to said error correction encoder, said processor comprising a computer program comprising steps for:

determining an error rate level of a communication channel between a plurality of communications terminals based on a plurality of bearer data packets when received during a multi-frame; and

selecting an error correction algorithm from a plurality of error correction algorithms taking into account said 20 determined error rate level.

37. The communications terminal of claim 36, further comprising:

an error detection decoder electrically coupled to said error correction decoder and said processor; and

5 wherein said error rate level determination step comprises directing said error correction decoder to correct said plurality of bearer data packets and directing said error detection decoder to detect a number of defective bearer data packets, and wherein said error correction algorithm determination step is based on said number of defective bearer data packets.

38. The communications terminal of claim 36, wherein said error rate level determination comprises directing said error correction decoder to detect a number of bit errors in said plurality of bearer data packets, and wherein said error rate level determination is based on said number of bit errors.

20 39. The communications terminal of claim 36, wherein said computer program further comprises a step for directing said error correction decoder to correct a bearer data packet received

~~Sub~~ during a time frame subsequent to said multi-time frame using said selected error correction algorithm.

40. The communications terminal of claim 36, further comprising an antenna electrically coupled to said receiver.

41. The communications terminal of claim 36, further comprising:

a transmitter;

an error correction encoder electrically coupled to said transmitter and said processor;

wherein said computer program further comprises a step directing said error correction encoder to generate another bearer data packet according to another selected error correction algorithm.

42. A communications system comprising:

a communications terminal comprising computer software comprising steps for:

determining an error rate level of a communication channel between a plurality of communications terminals based on

a plurality of bearer data packets when received during a multi-frame;

selecting an error correction algorithm from a plurality of error correction algorithms taking into account said 5 determined error rate level; and

correcting a bearer data packet when received during a frame subsequent to said multi-frame using said selected error correction algorithm.

43. The communications system of claim 42, wherein said error rate level determination step comprises correcting said plurality of bearer data packets and detecting a number of defective bearer data packets, and wherein said error correction algorithm selection step comprises selecting said error correction algorithm in response to said number of defective 15 bearer data packets.

44. The communications system of claim 42, wherein said error rate level determination step comprises detecting a number 20 of bit errors in said plurality of bearer data packets to obtain, and wherein said error correction algorithm selection step

comprises selecting said error correction algorithm in response to said number of bit errors.

45. The communications system of claim 42, wherein said
5 communications terminal is a remote station.

46. The communications system of claim 42, wherein said communications terminal is a base station.

47. The communications system of claim 42, wherein said communications terminal is a wired communications terminal.

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